

## Introduction to Protein Science

Architecture, Function, and Genomics

Second Edition

Arthur Lesk, *The Pennsylvania State University*

*Introduction to Protein Science* provides a broad ranging introduction to the contemporary study of proteins in health and disease, suitable for students on biological, biochemical, and biomedical degrees internationally. It relates the study of proteins to the context of modern high-throughput data streams of genomics and proteomics. Describing basic principles of protein structure and methods for studying them, the book illustrates the wide range of functions that proteins have, showing how the structures of proteins are intimately linked to their functions.

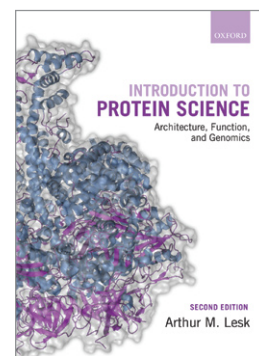
This invigorated new edition includes coverage of recent developments in the field; extended treatment of topics such as protein evolution, and the immune system; and a wider range of end-of-chapter exercises, problems and weblems. The clear and accessible approach of the book ensures it captures the current state of excitement in a way that all biosciences students and instructors will find appealing.

### CONTENTS

Introduction; Protein structure; Protein structure determination; Bioinformatics of protein sequence and structure; Proteins as catalysts: enzyme structure, kinetics, and mechanism; Proteins with partners; Evolution of protein structure and function; Protein folding and design; Proteomics and systems biology

**Readership:** Second and third year bioscience, biochemistry and biomedical science undergraduate students on degree courses internationally.

455 pages 2010 978-0-19-954130-0 Paperback £32.99



“The use of computer generated images of protein structures is a welcome feature as they provide a clear representation of the actual 3D structure of the proteins discussed. The commentary about these images ensures that the reader is not misled by the simplicity of the diagrams and explains the more complex features of the protein.”

**Laura Jacobs, 2nd year biomedical science student, Oxford Brookes University**

**ONLINE RESOURCE CENTRE**



**For registered adopters of the book:**

- Figures from the book available to download
- Answers to end-of-chapter exercises

**For students:**

- Links to useful websites to aid further research into protein science
- Helpful hints and tips for answering end-of-chapter problems

[www.oxfordtextbooks.co.uk/orc/leskprotein2e/](http://www.oxfordtextbooks.co.uk/orc/leskprotein2e/)

## Protein Structure and Function

Gregory Petsko, and Dagmar Ringe, *both of Brandeis University*

*Protein Structure and Function* provides a clear and critical survey of our current understanding of the structure and function of proteins. Opening with a consideration of the link between protein sequence and structure, it goes on to explore the structural basis of protein function and how this function is controlled. Finally, it examines a range of case studies that illuminate the range of roles performed by proteins, and the diverse structures these proteins exhibit.

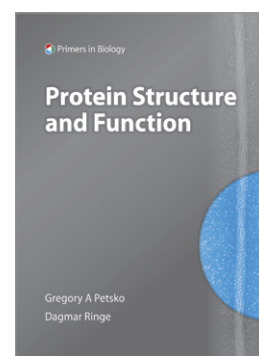
### CONTENTS

From sequence to structure; From structure to function; Control of protein function; From sequence to function: Case studies in structural and functional genomics; Structure determination

**Primers in Biology**

**Readership:** Intermediate and advanced undergraduate and beginning graduate biochemistry and molecular biology students.

220 pages 2008 978-0-19-955684-7 Paperback £31.99



“A really good book provides a wealth of information in a manner that the reader remembers what he/she has read. This book does just that. The contents just pop into mind from time to time. This book will be a winner.”

**Tom Bruice, University of California, Santa Barbara**

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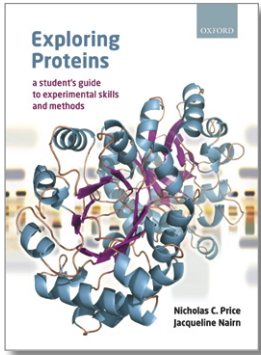


**For registered adopters of the book:**

- Figures from the book available to download

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## Exploring Proteins

A student's guide to experimental skills and methods

Nicholas Price, University of Glasgow, and Jacqueline Nairn, University of Stirling

*Exploring Proteins* offers a complete course in developing the skills - and self-confidence - to be able to understand the way proteins behave and the basis of the methods used to separate, identify and characterise them.

With a focus throughout on active learning, the book blends background information on proteins and protein biochemistry, with the methods used to study them, featuring extensive worked examples and questions throughout to help the reader check their understanding, and develop critical data-handling skills for themselves.

### CONTENTS

**SECTION A: THE BASIC CONCEPTS AND TOOLS;** Conceptual toolkit: The molecular principles for understanding proteins; The key mathematical tools; Calculations in the molecular biosciences: Part 1. Characterisation of molecular components; Calculations in the molecular biosciences: Part 2. Characterisation of processes; **SECTION B: GOALS AND METHODS;** The important properties of proteins and how to explore them; Section C - Data analysis in practice; Analytical methods; Purification of proteins; Determination of protein structure; Enzyme activity and mechanism; Binding of ligands to proteins; How to report experimental work

**Readership:** Intermediate and advanced biomolecular science undergraduates following a degree programme in biochemistry or molecular biology. Also of interest to postgraduates who are encountering experimental biochemistry for the first time.

528 pages 2009 978-0-19-920570-7 Paperback £27.99

This book very cogently and comprehensively draws together an immense amount of information of everyday value to researchers interested in understanding protein structure and function. I highly recommend this book to laboratory workers and institutional libraries.

**Microbiology Today**

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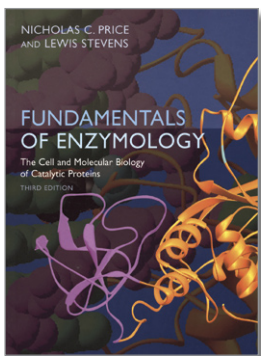
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### For registered adopters of the book:

- Figures from the book in electronic format
- Practical activities - suggested protocols for the carrying out of experiments included in the book
- Solutions to all end-of-chapter problems

### For students:

- Detailed solutions to the odd numbered end-of-chapter problems



## Fundamentals of Enzymology

Cell and Molecular Biology of Catalytic Proteins

Third Edition

Nicholas Price, University of Glasgow, and Lewis Stevens

*Fundamentals of Enzymology* gives an all-round view of the field including enzyme purification and characterization, enzyme structure (including information on the web), enzyme kinetics, the mechanisms and control of enzyme action, enzyme folding, how enzymes act *in vivo*, enzyme synthesis and degradation, and also clinical and industrial applications of enzymology. Throughout the book, the integration of these themes is stressed.

**Readership:** Second or third (fourth in Scotland) year undergraduates on biochemistry/molecular biology courses.

496 pages 1999 978-0-19-850229-6 Paperback £41.99

*Fundamentals of Enzymology* remains an extremely useful textbook for undergraduate students and their teachers of enzymology and is a useful reference work for postgraduate students embarking on research in this area.

**Trends in Biochemical Sciences**